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from America. Under date of August 14th, for instance, its New York correspondent sent this dispatch :

"Still the heat continues, and the odor of the charnel house reigns over the city. From hundreds of decomposing human bodies, and from the rotting carcasses of horses there exhales a stench that is positively sickening. Added to this horror is an epidemic of rabies. Mad dogs are running about the streets, and already more than a score of children have been bitten. The mortality due to the heat yesterday totals up 85 persons."

UNIVERSITY AND EDUCATIONAL NEWS.

MRS. EDWARD ROBY, Mr. E. A. Shedd and Mr. C. B. Shedd have offered the University of Chicago a large tract of land around Wolf Lake and the channel connecting it with Lake Michigan, for the purpose of a lake biological station, and it is also understood that they will erect the buildings for the purpose if the offer is accepted. The gift is valued at \$500,000.

THE Lewis Institute, the new Chicago school of technology, the foundation stone of which was laid two years ago, has now been dedicated. The late Allan G. Lewis left, in 1877, \$500,000 for the purpose, which has now accumulated so as to make the value of the endowment \$1,600,000.

THE Ohio State University is now erecting three new buildings, viz : Townshend Hall, for the accommodation of agriculture and agricultural chemistry, to cost \$75,000 ; a Gymnasium and Armory, to cost \$65,000 ; and one for physiology, zoology and entomology, to cost \$35,000.

AT Amherst College Mr. F. B. Loomis has been appointed assistant in biology and Mr. E. S. Newton assistant in chemistry. At Lafayette College Mr. W. O. Pennell has been appointed instructor in mathematics and drawing ; P. C. Nugent, instructor in civil engineering, and R. E. Dennis, instructor in chemistry. At Wellesley College, Miss A. M. Claypole has been appointed instructor in zoology, and Miss J. Evans instructor in botany ; Miss M. E. Maltby will be acting professor of physics during the absence abroad of Miss S. F. Whitinghead, of the department.

DR. TSCHERMAK, of the Military Medical

Academy of St. Petersburg, has been appointed full professor of comparative anatomy and embryology in the University of Dorpat. Dr. Lynen, of Charlottenberg, has been appointed professor of mechanical engineering in the Polytechnic Institute at Aachen.

DISCUSSION AND CORRESPONDENCE.

MR. LOWELL'S BOOK ON 'MARS.'

THE strong title, "The Lick Review of 'Mars'" which Mr. Douglass prefixes to his paper is a misnomer. The book was read, the review was written, the MS. was forwarded to the editor and put in type, wholly in the absence of those of my colleagues who were specially interested in Mars. The responsibility for every statement lies with me and is cheerfully accepted. Nor are any changes now required.

It is a matter of extreme regret to me that Mr. Douglass' comments on my review are so largely personal. I had hoped that one or more of the scientific questions involved might be discussed. My review covered a very limited number of the points which I had desired to bring up ; at many points in Mr. Lowell's argument the connection of cause and effect is not clear ; and the subject is important. I sincerely hope that Mr. Douglass will write another paper and devote it to the scientific side of Mars.

I again wish to acknowledge my indebtedness for the quotations from one of Schiaparelli's papers translated at Flagstaff by Prof. W. H. Pickering, from which I quoted and to which I gave credit. But many of us had previously read Schiaparelli's earlier papers in *Himmel und Erde*, in Flammarion's *Mars* and in the transactions of the *Reale Accademia dei Lincei*, and had found them full of facts determined and theories faintly suggested to which the modern writer of a book on Mars could conscientiously give credit.

It is true, as Mr. Douglass suggests, that Schiaparelli claimed to have observed seasonal changes on Mars. It is also only too true that Mr. Lowell's book does not mention the eminent Italian's observations of such changes. For my pains in quoting Schiaparelli's own description of the seasonal changes observed by

him, I am charged with an 'attempt to seize the credit,' and with taking part in a 'proceeding;' and the quotation is 'irrelevant!'

The Mt. Hamilton observations of canals within the dark regions were made in 1892. Mr. Douglass says that he and Prof. Pickering also observed them, at Arequipa, in 1892. What I objected to was the fact that Mr. Lowell's book speaks of them as if they were discovered at Lowell Observatory, in 1894, by Mr. Douglass and were absolutely new. The 1892 observations, by two other observers, are entirely overlooked by Mr. Lowell. For venturing to suggest that their history did not begin in 1894, I am charged with an 'act of appropriation.' Further, so long as Mr. Lowell considers the network of fine dark marking to be, not water, but *vegetation*, and persists in calling them 'canals,' he cannot object when another observer of a more scientific turn of mind chooses to call them 'streaks,' so long as no one knew, and no one even now knows, their real character.

The first projections on the terminator of Mars were observed at Mt. Hamilton in 1890. The first one was, as Mr. Douglass says, detected by a visitor on one of the public Saturday nights. All the facts there are in the case were published by the Lick Observatory staff on two or more occasions, and Mr. Douglass is indebted wholly to those published accounts for his information. The *morale* of this observatory is such that full credit is always given in such a case. If the other observatory in question had been equally disposed to give credit I should not now have to give the history of the subject. Mars was not regularly observed at Mt. Hamilton in 1890. The great telescope was devoted to other important work. On Saturday nights the telescope was directed upon Mars for the benefit of 100 to 300 visitors, and at such times the astronomer in charge very often did not place his eye to the telescope for several hours. It was on one of those occasions that a very prominent projection presented itself. For suggesting that the history of the prominences did not begin in 1894, I am charged with 'an attempt on the rights of property.'

About vegetation, what did Schiaparelli say? He said the variations observed might be the

result of 'extensive agricultural labor and irrigation upon a large scale.' The observed appearances might be explained by 'changes of vegetation over a vast area.' And his comment on those theories is as follows: "For us, who know so little of the physical state of Mars, and nothing of its organic life, the great liberty of possible supposition renders arbitrary all explanations of this sort, and constitutes the gravest obstacle to the acquisition of well-founded notions." Nor is this all, for Prof. W. H. Pickering suggested the same theory many years ago.

About Mr. Douglass' paragraph 8, what are the facts and why does he not publish them? Here are the facts: In 1892 at Alleghany Observatory it was determined that the markings on Mars came to the central meridian 7 degrees (about 28 minutes) later than the predicted time and attention was called to the discrepancy. In 1894 Mr. Lowell at Flagstaff observed the same discrepancy, but estimated its value at 5 degrees (about 20 minutes). Here are two observations of the same discrepancy. One observer of long experience estimates it at 7 degrees; and the other observer at 5 degrees. In the book under review the 5-degree estimate is unfurled to the breeze from Flagstaff, whereas the 1892 results are not even displayed at half-mast, though the author was aware of their existence. And yet when my review called attention to the fact that the discrepancy was observed and commented upon in 1892, Mr. Douglass says that it 'will be seen to be an error.'

My remark "that there should be so many evidences of *apparent* lack of familiarity with the literature of the subject" was certainly the most *charitable* form in which I could speak.

W. W. CAMPBELL.

SCIENTIFIC LITERATURE.

The Primary Factors of Organic Evolution. By E. D. COPE, Ph.D. Chicago, The Open Court Publishing Co. 1896.

In *Primary Factors of Organic Evolution*, Prof. Cope is no longer a setter-forth of new doctrines, but "the present book is an attempt to select from the mass of facts accumulated by biologists, those which, in the author's opinion,